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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/552,376

10/07/2005

Hua Chen

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46507

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10/29/2008

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EXAMINER

VERDIER, CHRISTOPHER M

ART UNIT

PAPER NUMBER

3745

MAIL DATE

DELIVERY MODE

10/29/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/552,376	Applicant(s) CHEN, HUA	
	Examiner Christopher Verdier	Art Unit 3745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 October 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4,6,9 and 11-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4,6,9 and 11-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 October 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on October 3, 2008 has been entered.

Claim 16 has been amended to correct the informality therein set forth in the previous Office action. Correction of this matter is noted with appreciation.

Applicant's argument that claim 16 has been amended to overcome the rejection under 35 USC 112, second paragraph by clarifying for each discontinuity that the first sharp edge is the first sharp edge respectively associated with that discontinuity, is not persuasive. In amended claim 16, line 3, "its respective first sharp edge" lacks antecedent basis and is unclear as to which sharp edge is referred to.

Applicant's argument that amended claim 1 defines over Yoshinaga 4,395,197 and Fabri 3,824,029 is not persuasive. Applicant has argued that both of these references disclose shrouded wheels (wheels that incorporate a shroud that rotates with the wheel), and that the gas flow path for these shrouded wheels extends within and through the rotating shroud, but not outside the rotating shroud. This argument is not persuasive, because the fact that Yoshinaga 4,395,197 and Fabri 3,824,029 disclose shrouded wheels does not distinguish over the amended

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claims for the reasons set forth below. The gas flow path for these shrouded wheels extends within and through the rotating shroud, as well as outside the rotating shroud. Applicant's argument that the discontinuities identified in the Office Action are radially outside of the rotating shrouds, and thus they are not along the gas flow path, is also not persuasive. The gas flow path for the shrouded wheels in Yoshinaga 4,395,197 and Fabri 3,824,029 extends within and through the rotating shroud, as well as outside the rotating shroud and is not excluded by the amended claim language. Concerning Applicant's arguments that Yoshinaga and Fabri fail to disclose downstream-facing blocking faces, blocking faces extending across the flow path, and smoothly curving surfaces along the gas flow path (that connect to the blocking face via a sharp edge), the examiner respectfully disagrees. These features are identified below in the claim rejections that follow.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 16/1 and 16/4 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claim 16, line 3, "its respective first sharp edge" lacks antecedent basis and is unclear as to which sharp edge is referred to.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

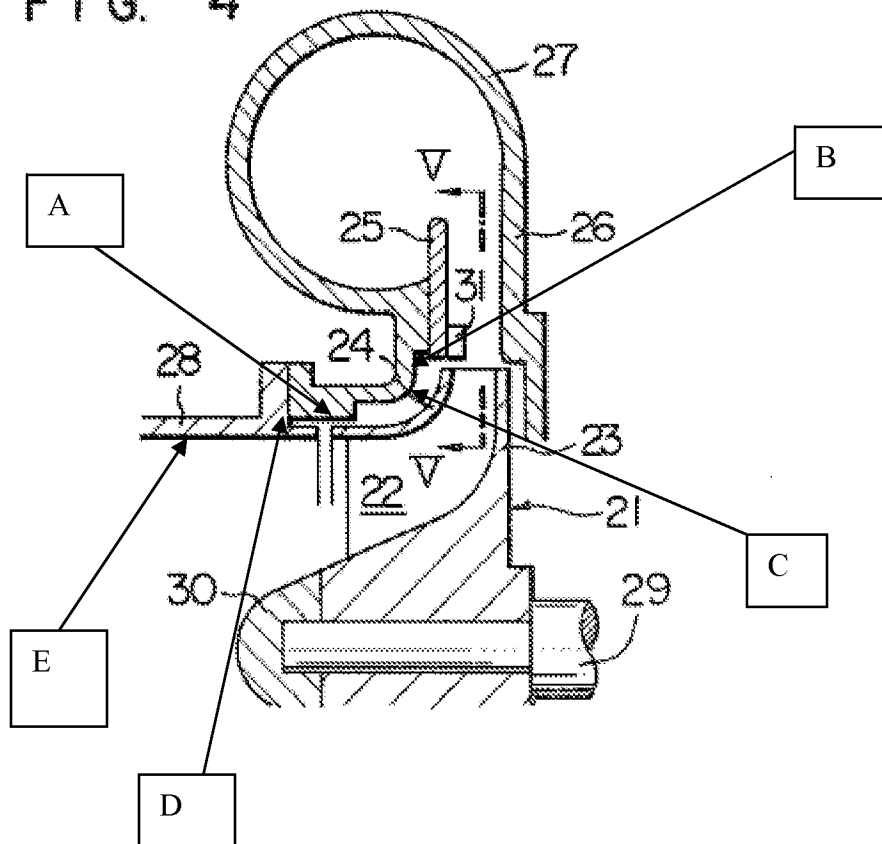
A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 4, 5, 6, 9, 11, 12/6, 13/6, 14/6, 15/6, 12/9, 13/9, 14/9, 12/4, 13/4, 14/4, 15/1, 15/4, and 15/11 are rejected under 35 U.S.C. 102(b) as being anticipated by Yoshinaga 4,395,197. Disclosed is a compressor comprising a compressor wheel 21 having a hub 1, compressor blades 22 and being mounted for rotation on a shaft 29, each blade being characterized by an outer edge, an upstream leading edge and a downstream trailing edge, and a shroud 27/28 mounted adjacent (note that adjacent does not require that two elements be immediately next to one another) and around the outer edges of the compressor blades and defining a gas flow path between the shroud and the hub from a compressor inlet to a diffuser outlet, through which the blades rotate with respect to the shroud, wherein in cross-section the shroud forms a surface A along the flow path, the surface being characterized by a profile that includes a relative discontinuity B in the region of the trailing edge, wherein the discontinuity forms a downstream-facing blocking face adapted to impede an upstream flow of gas between the shroud and the wheel, the blocking face extending across the flow path to form a sharp edge connecting the blocking face to a smoothly curving surface C along the gas flow path upstream of the discontinuity. The cross-section profile of the shroud surface along the flow path is further characterized by a second relative discontinuity D that is in the region of the leading

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edge, wherein the second relative discontinuity forms a second downstream-facing blocking face adapted to impede an upstream flow of gas between the shroud and the wheel, the second blocking face extending across the flow path to form a sharp edge connecting the second blocking face to a second smooth surface E upstream of the second discontinuity. The second discontinuity is located upstream of the leading edge of the wheel blades. The second discontinuity is spaced from the leading edge of the wheel blades by a distance of the same order as the axial clearance of the trailing edge from the compressor housing. The or each downstream-facing blocking face comprises a planar surface cut into the curving surface. The second downstream-facing blocking face comprises a planar surface cut into the curving surface, and the planar surface is perpendicular to the axis of the shaft. The radial extent of the second discontinuity is of the same order as the radial clearance between the trailing edge and the housing. The sizes of the first and second discontinuities are closely similar. The shapes of the first and second discontinuities are closely similar. Concerning claim 15, the term “turbocharger” is recited in the preamble of the claim and has not been given patentable weight. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951). Note the annotated figure below.

FIG. 4

Claims 1, 4, 5, 9, 11, 13/9, 14/9, 13/4, 14/4, 15/1, 15/4, and 15/11 are rejected under 35 U.S.C. 102(b) as being anticipated by Fabri 3,824,029. Disclosed is a compressor comprising a compressor wheel 3/6 having a hub 3 and compressor blades 9 and being mounted for rotation on a shaft 4, each blade being characterized by an outer edge, an upstream leading edge and a downstream trailing edge, and a shroud 1 mounted adjacent (note that adjacent does not require that two elements be immediately next to one another) and around the outer edges of the

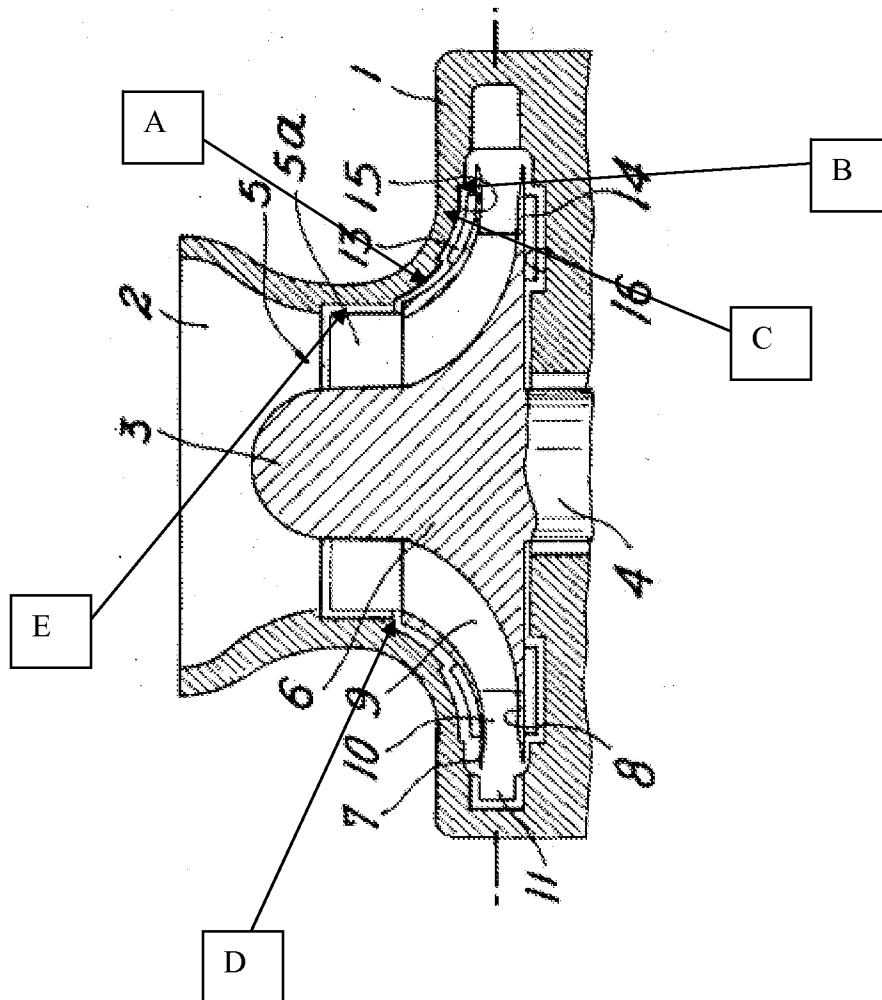
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compressor blades and defining a gas flow path between the shroud and the hub from a compressor inlet to a diffuser outlet, through which the blades rotate with respect to the shroud, wherein in cross-section the shroud forms a surface A along the flow path, the surface being characterized by a profile that includes a relative discontinuity B in the region of the trailing edge, wherein the discontinuity forms a downstream-facing blocking face adapted to impede an upstream flow of gas between the shroud and the wheel, the blocking face extending across the flow path to form a sharp edge connecting the blocking face to a smoothly curving surface C along the gas flow path upstream of the discontinuity. The cross-section profile of the shroud surface along the flow path is further characterized by a second relative discontinuity D that is in the region of the leading edge, wherein the second relative discontinuity forms a second downstream-facing blocking face adapted to impede an upstream flow of gas between the shroud and the wheel, the second blocking face extending across the flow path to form a sharp edge connecting the second blocking face to a second smooth surface E upstream of the second discontinuity. The second discontinuity is located upstream of the leading edge of the wheel blades. The or each downstream-facing blocking face comprises a planar surface cut into the curving surface. The second downstream-facing blocking face comprises a planar surface cut into the curving surface, and the planar surface is perpendicular to the axis of the shaft. The sizes of the first and second discontinuities are closely similar. The shapes of the first and second discontinuities are closely similar. Concerning claim 15, the term “turbocharger” is recited in the preamble of the claim and has not been given patentable weight. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble

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for completeness but, instead, the process steps or structural limitations are able to stand alone.

See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951). Note the annotated figure below.



Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 16/1 and 16/4, as far as they are definite and understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Fabri 3,824,029 in view of Trumpler 2,471,174. Fabri discloses a compressor substantially as claimed as set forth above, including the blocking face at B forming a second sharp edge on an opposite side of the blocking face from the first sharp edge, but does not disclose that the second sharp edge connects the blocking face to a smoothly curving surface downstream of its respective discontinuity.

Trumpler shows a centrifugal compressor having a blocking face (unnumbered, attached to C and opposite 34a) forming a second sharp edge on an opposite side of the blocking face from a first sharp edge, the second sharp edge connecting the blocking face to a smoothly curving surface 5a downstream of its respective discontinuity, for the purpose of providing recirculation to prevent surge.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to form the compressor of Fabri such that the second sharp edge connects the blocking face to a smoothly curving surface downstream of its respective discontinuity, as taught by Trumpler, for the purpose of providing recirculation to prevent surge.

All claims are drawn to the same invention claimed in the application prior to the entry of the submission under 37 CFR 1.114 and could have been finally rejected on the grounds and art of record in the next Office action if they had been entered in the application prior to entry under

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37 CFR 1.114. Accordingly, **THIS ACTION IS MADE FINAL** even though it is a first action after the filing of a request for continued examination and the submission under 37 CFR 1.114. See MPEP § 706.07(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher Verdier whose telephone number is (571) 272-4824. The examiner can normally be reached on Monday-Friday from 10:00-6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward K. Look can be reached on (571) 272-4820. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Christopher Verdier/
Primary Examiner, Art Unit 3745

Christopher Verdier
Primary Examiner
Art Unit 3745